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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/823,405	03/30/2001	Hai Thanh Nguyen	50019.61US01/PO4968	8755

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EXAMINER

YANCHUS III, PAUL B

ART UNIT	PAPER NUMBER
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2116

DATE MAILED: 06/24/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/823,405

Applicant(s)

NGUYEN ET AL.

Examiner

Paul B Yanchus

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8 and 12 is/are rejected.
- 7) ☒ Claim(s) 5-7, 9-11 and 13-16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

Claim 1 is objected to because of the following informalities: In lines 3, 6 and 8 of claim 1 "is" should be removed. Appropriate correction is required.

Claim 13 is objected to because of the following informalities: In line 8 of claim 13, it appears that "comparator output signal" is a typographical error. For examination purposes, examiner assumes that "comparator output signal" is intended to be "first timing signal."

Allowable Subject Matter

Claims 5-7 and 9-11 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 13-16 would be allowable if rewritten or amended to overcome the objection, set forth in this Office action.

Claims 17-20 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record does not teach or suggest a clock free apparatus for sampling an input signal which comprises a timing delay circuit for generating a first strobe signal and a second strobe signal within the pulse-width of the input signal and circuitry for sampling data points in response to the input signal and the first and second strobe signals.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Chang et al., US Patent no. 6,232,802 [Chang].

Regarding claim 1, Chang teaches a clock free apparatus for sampling an input signal that has a pulse-width defined between a first edge and a second edge, comprising:

a timing delay circuit [Figure 6] arranged to produce strobe signals [Timing Window in Figure 6] in response to the input signal [Input Data Signal] such that the strobe signals have pulse-widths that are within the pulse-width of the input signal [Figure 3A];

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a comparator circuit [element 205 in Figure 2] arranged to produce a comparator output signal [element 230 in Figure 2] in response to a comparison between the input signal [Input Data in Figure 2] and a reference level signal [Vo in Figure 2]; and

a sampling logic [Sample and Block Circuit in Figure 2 and Figure 7] arranged to sample data points within a sampling window [Smart Timing Window in Figure 2 and Figure 7] in response to the strobe signals [Control Signal in Figure 7] and the comparator output signal [element 230 in Figure 2 and Figure 7], the sampling window having edges that correspond to the pulse-width of the input signal such that the sampled data points correspond to samples from the comparator output signal [column 4, lines 25-65 and column 6, lines 25-58].

Regarding claim 8, Chang teaches that the input signal is sampled and a determination is made whether the input signal peak voltage is above or below a reference voltage [column 7, lines 14-43].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al., US Patent no. 6,232,802 [Chang] in view of Sakurai, US Patent no. 6,448,821.

Regarding claim 2, Chang, as described above, teaches a clock free apparatus for sampling an input signal comprising a comparator circuit arranged to produce a comparator

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output signal in response to a comparison between the input signal and a reference level signal but does not explicitly teach that the comparator operates with differential input signals.

Sakurai teaches that it is well known in the art to use a comparator to compare a differential input signal with a differential reference signal [column 1, lines 15-35].

It would have been obvious to one of ordinary skill in the art to include the well known differential signal comparator taught by Sakurai in the clock free sampling apparatus taught by Chang to enable the clock free sampling apparatus to operate with high speed and high precision circuitry which requires the use of differential signals [Sakurai, column 1, lines 15-20].

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al., US Patent no. 6,232,802 [Chang] and Sakurai, US Patent no. 6,448,821, in view of Keeth, US Patent no. 6,218,823.

Chang and Sakurai, as described above, teach a clock free sampling apparatus comprising a differential comparator for comparing a differential input signal with a differential reference signal. Chang and Sakurai do not specifically teach that the comparator determines whether or not the differential input signal is within the range specified by the differential reference signal.

Keeth teaches a differential comparator, which determines whether a differential input voltage, is inside of an acceptable range [column 5, lines 5-10].

It would have been obvious to one of ordinary skill in the art to incorporate the range detecting differential comparator taught by Keeth into the clock free apparatus taught by Chang and Sakurai in order to ensure that the sampling takes place when the input signal is inside of an appropriate range.

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Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chang et al., US Patent no. 6,232,802 [Chang].

Chang does not explicitly teach an equalizer circuit that produces an equalized signal and a data slicer circuit that produces a digital version of the equalized signal. However, advantages to using equalizer circuits and data slicer circuits are well known in the art and it would have been obvious to one of ordinary skill in the art to incorporate the well known equalizer circuits and data slicer circuits in to the clock free apparatus taught by Chang in order to realize the well known advantages.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kulhalli et al., US Patent no. 6,489,813, teaches a comparator for comparing differential signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul B Yanchus whose telephone number is (703) 305-8022. The examiner can normally be reached on Mon-Thurs 8:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on (703) 308-1159. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paul Yanchus
June 21, 2004



**REHANA PERVEEN
PRIMARY EXAMINER**